## CLAIMS

- 1. An agonistic binding molecule capable of binding to and stimulating the human OX40-receptor.
- 2. A binding molecule according to claim 1, wherein the binding molecule is a human binding molecule.
- 3. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises at least a CDR3 region comprising the amino acid sequence selected from the group consisting of SEQ ID NO:17 (DRYSQVHYALDY), SEQ ID NO:18 (DRYVNTSNAFDY), SEQ ID NO:19 (DMSGFHEFDY), SEQ ID NO:20 (DRYFRQQNAFDY), SEQ ID NO:21 (ARAAGTIFDY), SEQ ID NO:22 (DRYITLPNALDY), SEQ ID NO:23 (YDEPLTIYWFDS) and SEQ ID NO:24 (YDNVMGLYWFDY).
- 4. A binding molecule according to any one of the claims 1 3, wherein the binding molecule comprises a heavy chain comprising an amino acid sequence selected from the group consisting of SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27 and SEQ ID NO:28.
- 5. A functional variant of a binding molecule according to claim 3 or 4, wherein the functional variant is capable of competing for specifically binding to the human OX40-receptor.
- 6. An immunoconjugate comprising a binding molecule according to any one of the claims 1 - 4 or a functional variant according to claim 5, the immunoconjugate further comprising at least one tag.



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- 7. A nucleic acid molecule encoding a binding molecule according to any one of the claims 1 - 4 or a functional variant according to claim 5.
- 8. A vector comprising at least one nucleic acid molecule according to claim 7.
- A host comprising at least one vector according to claim 8.
- 10. A host according to claim 9, wherein the host is a cell derived from a human cell.
- 11. A method of producing a binding molecule according to any one of the claims 1 4 or a functional variant according to claim 5, wherein the method comprises the steps of:
  - a) culturing a host according to claim 9 or 10 under conditions conducive to the expression of the binding molecule or functional variant, and
  - b) optionally recovering the expressed binding molecule or functional variant.
- 12. A binding molecule or functional variant thereof as obtainable by the method according to claim 11.
- 13. A method of identifying a binding molecule specifically binding to the human OX40-receptor or a nucleic acid molecule encoding a binding molecule specifically binding to the human OX40-receptor, wherein the method comprises the steps of:
  - a) contacting a phage library of binding molecules with material comprising the human OX40receptor,



- b) selecting at least once for a phage binding to the material comprising the human OX40receptor, and
- c) separating and recovering the phage binding to the material comprising the human OX40receptor.
- 14. A method of obtaining a binding molecule specifically binding to the human OX40-receptor or a nucleic acid molecule encoding a human binding molecule specifically binding to the human OX40-receptor, wherein the method comprises the steps of:
  - a) performing the method according to claim 13, and
  - b) isolating from the recovered phage the binding molecule and/or the nucleic acid molecule encoding the binding molecule.
- 15. A composition comprising a binding molecule according to any one of the claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, or a binding molecule or functional variant thereof according to claim 12.
- 16. A composition comprising a nucleic acid molecule according to claim 7.
- 17. A pharmaceutical composition comprising a binding molecule according to any one of the claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a binding molecule or functional variant thereof according to claim 12, or a composition according to claim 15 or 16,

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the pharmaceutical composition further comprising at least one pharmaceutically acceptable excipient.

- 18. A pharmaceutical composition according to claim 17 further comprising at least one other therapeutic agent.
- 19. Use of a binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for stimulating T-cells in vitro.
- 20. A binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for use as a medicament.
- 21. A binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for use in the treatment of a neoplastic, viral or bacterial disorder or disease.

- 22. A binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for use in enhancing the immune response in a human or animal.
- 23. A binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for use in enhancing the immune response against a tumour, bacterial or viral antigen in a human or animal.
- 24. Use of a binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for the preparation of a medicament for the treatment of a neoplastic, viral or bacterial disorder or a disease.

- 25. Use of a binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for the preparation of a medicament for enhancing the immune response in a human or animal.
- 26. Use of a binding molecule according to any one of claims 1 4, a functional variant according to claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a binding molecule or functional variant thereof according to claim 12, a composition according to claim 15 or 16 or a pharmaceutical composition according to claim 17 or 18 for the preparation of a medicament for enhancing the immune response against a tumour, bacterial or viral antigen in a human or animal.
- 27. A method for modulating a T-cell response in a human, comprising the step of administering to said human an effective dose of a binding molecule according to any one of the claims 1 4 or a functional variant of claim 5, an immunoconjugate according to claim 6, a nucleic acid molecule according to claim 7, a vector according to claim 8 or a pharmaceutical composition according to claim 17 or 18.
- 28. A method according to claim 27, wherein said modulation comprises the stimulation of T-cell proliferation.